

WHAT IS CLAIMED IS:

1. A liquid crystal display module, comprising:
a liquid crystal display panel which comprises a
pair of substrates facing each other, columnar spacers
5 formed on at least one of the substrates and configured
to provide a clearance between the substrates, and a
liquid crystal material filling the clearance between
the substrates; and

a support member supporting the panel and
10 configured to make the panel stand during use of the
module, wherein, where temperature of the panel rises
from 25°C to 50°C, the spacers keep elastically deformed
by pressure applied from the substrates.

2. A liquid crystal display module according to
15 claim 1, further comprising a light source configured
to irradiate the panel with light, wherein a highest
temperature reached by the panel by continuously
lighting the light source is equal to or lower than
50°C.

3. A liquid crystal display module according to
20 claim 2, wherein the panel includes an effective
display region with a diagonal dimension equal to or
longer than 12 inches.

4. A liquid crystal display module according to
25 claim 1, wherein, where the temperature of the panel
rises from 25°C to 70°C, the spacers keep elastically
deformed by the pressure applied from the substrates.

5. A liquid crystal display module according to claim 4, further comprising a light source configured to irradiate the panel with light, wherein a highest temperature reached by the panel by continuously
5 lighting the light source is equal to or lower than 70°C.

6. A liquid crystal display module according to claim 5, wherein the panel includes an effective display region with a diagonal dimension equal to or
10 longer than 12 inches.

7. A liquid crystal display module according to claim 1, further comprising a light source configured to irradiate the panel with light.

8. A liquid crystal display module according to
15 claim 7, wherein the panel includes an effective display region with a diagonal dimension equal to or longer than 12 inches.

9. A liquid crystal display module, comprising:
a liquid crystal display panel which comprises a
20 pair of substrates facing each other, columnar spacers formed on at least one of the substrates and configured to provide a clearance between the substrates, and a liquid crystal material filling the clearance between the substrates; and

25 a support member supporting the panel and configured to make the panel stand during use of the module, wherein the spacers are elastically deformed at

25°C by pressure applied from the substrates, and H_0 , H_1 , β and ΔD_1 satisfy a relationship represented by an inequality:

$$H_0 - H_1 + 25 \times \beta \times H_0 > \Delta D_1,$$

5 where H_0 represents a height of the spacers at 25°C under a state that the pressure is removed, H_1 represents a height of the spacers at 25°C under a state that the pressure is applied, β represents a linear expansion coefficient of the spacers, and ΔD_1 represents an increase in distance between the substrates which is calculated from an increase in volume of the liquid crystal material caused by a temperature elevation from 25°C to 50°C.

10 10. A liquid crystal display module according to claim 9, further comprising a light source configured to irradiate the panel with light, wherein a highest temperature reached by the panel by continuously lighting the light source is equal to or lower than 50°C.

20 11. A liquid crystal display module according to claim 10, wherein the panel includes an effective display region with a diagonal dimension equal to or longer than 12 inches.

25 12. A liquid crystal display module according to claim 9, wherein H_0 , H_1 , β and ΔD_2 satisfy a relationship represented by an inequality:

$$H_0 - H_1 + 45 \times \beta \times H_0 > \Delta D_2,$$

where ΔD_2 represents an increase in distance between the substrates which is calculated from an increase in volume of the liquid crystal material caused by a temperature elevation from 25°C to 70°C.

- 5 13. A liquid crystal display module according to claim 12, further comprising a light source configured to irradiate the panel with light, wherein a highest temperature reached by the panel by continuously lighting the light source is equal to or lower than
- 10 70°C.

14. A liquid crystal display module according to claim 13, wherein the panel includes an effective display region with a diagonal dimension equal to or longer than 12 inches.

- 15 15. A liquid crystal display module, comprising:

 a liquid crystal display panel which comprises a pair of substrates facing each other, columnar spacers formed on at least one of the substrates and configured to provide a clearance between the substrates, and a

20 liquid crystal material filling the clearance between the substrates; and

 a support member supporting the panel and configured to make the panel stand during use of the module, wherein the spacers are elastically deformed at

25 25°C by pressure applied from the substrates, and H_0 , H_1 and ΔD_1 satisfy a relationship represented by an inequality:

$$H_0 - H_1 > \Delta D_1,$$

where H_0 represents a height of the spacers at 25°C under a state that the pressure is removed, H_1 represents a height of the spacers at 25°C under a state that the pressure is applied, and ΔD_1 represents an increase in distance between the substrates which is calculated from an increase in volume of the liquid crystal material caused by a temperature elevation from 25°C to 50°C.

- 10 16. A liquid crystal display module according to claim 15, further comprising a light source configured to irradiate the panel with light, wherein a highest temperature reached by the panel by continuously lighting the light source is equal to or lower than
- 15 50°C.

17. A liquid crystal display module according to claim 16, wherein the panel includes an effective display region with a diagonal dimension equal to or longer than 12 inches.

- 20 18. A liquid crystal display module according to claim 15, wherein H_0 , H_1 and ΔD_2 satisfy a relationship represented by an inequality:

$$H_0 - H_1 > \Delta D_2,$$

- 25 where ΔD_2 represents an increase in distance between the substrates which is calculated from an increase in volume of the liquid crystal material caused by a temperature elevation from 25°C to 70°C.

19. A liquid crystal display module according to claim 18, further comprising a light source configured to irradiate the panel with light, wherein a highest temperature reached by the panel by continuously
5 lighting the light source is equal to or lower than 70°C.

20. A liquid crystal display module according to claim 19, wherein the panel includes an effective display region with a diagonal dimension equal to or
10 longer than 12 inches.

4004517-0007002